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INTERNATIONAL BANKING SYSTEM AND METHODFIELD OF THE INVENTION

10 The present invention generally relates to systems and methods for conducting international banking operations and more particularly to providing an international infrastructure to a strictly local bank.

CROSS-REFERENCE TO RELATED APPLICATIONS

15 This application is related to and claims priority to U.S. provisional patent application Serial No. 60/182,469, filed February 15, 2000, entitled PRIVATE LABEL BANKING SYSTEM AND METHOD, the entirety of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

20 In order to conduct international banking operations, an extremely large, extensive, complicated and expensive infrastructure is absolutely required. Each country around the world has its own unique rules, regulations and requirements for who can provide banking services in that country.

25 Typically, only large multinational financial institutions such as Chase Manhattan Bank, the assignee of the present invention, has the resources to provide such international banking services. Furthermore, even among large financial institutions, not all of them are members of the various clearing systems (e.g., Trans-European Automated Real-Time Gross settlement Express Transfer system (Target), Real-Time Gross Settlement systems (RTGS) and the Multi-  
30 Lateral Net Settlement systems (MLNS) in Europe).

Because of the lack of an international presence, most banks accordingly had developed relationships with regional banks in different parts of the world. When a client of the bank (for example in the United States) desires to conduct a transaction in a different part of the world (Germany for example) the bank  
35 contacts its associate and coordinates the transaction with a correspondent bank. Accordingly, if a bank has clients which require international banking services,

the bank must establish and maintain relationships with a multitude of correspondent banks throughout the world. The maintenance of these various relationships is both cumbersome, expensive, and time consuming both with respect to the bank and its clients.

- 5 International services typically required by customers include: direct payment initiation (high value (wire) and low value (Automated Clearing House (ACH) check disbursement)); receipt of credits of funds (both high value and low value including check deposits and collections as well as locks box processing); timely balance and transaction reporting; liquidity management (Automated
- 10 Investment (Sweeps), netting and pooling of grouped accounts); timely and attentive customer service in the local time zone; and purchase of checks in foreign currencies at their local branch office.

#### SUMMARY OF THE INVENTION

- 15 The present invention solves the problems of the prior art as described above by providing banks with access to a previously inaccessible existing international infrastructure. Throughout this discussion, a bank without the international presence shall be denoted as a client bank whereas the bank implementing the system and method of the present invention is known as the
- 20 provider bank.

- In order to initiate an international transaction through the provider bank, the provider bank first establishes on its system, a set of accounts for each of the customers of the client bank. These accounts are totally separate from the accounts of the customers of the provider bank and are therefore legally
- 25 considered "on the books" of the client bank and are therefore not legally customers of the provider bank.

- In essence, this model provides a new branch of the client bank (the client bank environment) in the system of the provider bank. The client bank environment has its own Demand Deposit Account (DDA) module to process
- 30 account entries and calculate interest and its own funds transfer module to initiate and to receive funds transfers.

The primary interface into the funds transfer section in the client bank environment is to the funds transfer section of the provider bank environment. The funds transfer section of the provider bank is coupled to the systems which

constitute the international banking infrastructure that is able to process banking transactions on a global basis for the customers of the client bank.

As a customer requests a particular international transaction, it is made known to the client bank directly by the customer. The client bank then  
5 communicates the requested transaction to the funds transfer section in the client bank environment within the system of the provider bank. The communication between the systems of the client bank and the provider bank systems can be made through a variety of means such as a CPU to CPU connection, a Value Added Network (VAN), a secure Electronic Data Interchange (EDI) transmission  
10 or even through the Internet. Once the client bank funds transfer section has received the requested transaction, it references the customer's accounts in the client bank environment (e.g., to debit the customer's account) and then transmit a transaction message (e.g., a payment message) to the funds transfer section of the provider bank environment. The funds transfer section of the provider bank  
15 can then process the transaction as if it was being made for one of the provider banks own customers (e.g., a high value wire transfer) through one of the clearing systems.

The system as described above is further able to provide liquidity management services to the customers of the client bank, check printing  
20 capabilities and check clearing functionality as well as lockbox processing services. In a further embodiment of the present invention, the system can be used for settlement services between members of a Business to Business (B2B) exchange service (e.g., Chemconnect).

## 25 BRIEF DESCRIPTION OF THE DRAWING(S)

For the purposes of illustrating the invention, there is shown in the drawings a form which is presently preferred, it being understood however, that the invention is not limited to the precise form shown by the drawing in which:

Fig. 1 illustrates an overview of the system and capabilities of the present  
30 invention;

Fig. 2 depicts the client bank and provider bank environments within the system of the provider bank;

Fig. 3 illustrates a first manner in which transaction information is communicated from the client bank to the provider bank;

Fig. 4 illustrates a second embodiment for transmission of transactions between the client bank and the provider bank;

Fig. 5 illustrates an example of a check transaction;

Fig. 6 depicts a lockbox processing embodiment of the present invention;

5 Fig. 7 illustrates NOSTRO account reconciliation; and

Fig. 8 depicts a business to business settlement and international banking embodiment of the present invention.

#### DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

10 Figure 1 illustrates a summary of the system of the present invention and some of the functionality provided thereby. The client bank 100 is typically a smaller local bank without any infrastructure for providing its customers with international banking services. The client bank 100 can either be based in the U.S., or based anywhere throughout the world. In the ever increasing  
15 globalization of the economy in both the U.S. and throughout the world, the customers of client bank 100 are increasingly finding it necessary to conduct banking transactions in foreign countries. For example, a United States manufacturing corporation based in Cleveland Ohio is now finding itself purchasing parts in Taiwan for assembly in Mexico for shipment to a customer in  
20 South Africa. This customer therefore has a need to both pay the supplier in Taiwan, issue checks to its employees in Mexico and to obtain payments from its customers in South Africa. The client bank 100 of the customer in Cleveland Ohio is incapable by itself, of conducting each of these transaction for its customer. Accordingly, customer 100 develops a relationship with provider bank  
25 120 that has the international infrastructure for providing all of these international banking services to the customer in Cleveland. In a preferred embodiment of the present invention, the services provided by provider bank 120 to client bank 100 are private labeled such that the customer of client bank 100 is unaware that provider bank 120 is even involved.

30 As client bank 100 receives a request for an international banking transaction from one of its customers, client bank 100 appropriately formats the transaction as a message for transmission to provider bank 120 on link 110. As will be further described below, link 110 between the two banks can be either a direct dial up connection from CPU to CPU, a Value Added Network (VAN), a

leased line, or the Internet. The format of the message between client bank 100 and provider 120 can be one of several including Accredited Standards Committee (ASC) standard ASC X12 820, EDI Administration, Commerce and Transport standard (UN/EDIFACT or EDIFACT), a secure EDI format or a proprietary format as described below.

The systems in provider bank 120 are capable of receiving the transaction message from client bank 100 and capable of performing the requested banking transaction. As illustrated in Figure 1, these transactions include the printing of checks both within the U.S. and around the world 130, initiating a U.S. domestic ACH transaction 140, initiating an international ACH transaction 150, a wire transfer throughout the world of U.S. dollars 160 and a wire transfer of currency in any denomination including Euros and mixed denominations 170. As will be further described below with respect to the remainder of the Figures, provider bank 120 is capable of performing a wide variety of banking services such as the reception of credits and payments and lock box processing for example.

Figure 2 illustrates in more detail the system of the present invention. As illustrated in Figure 2, the funds processing systems of the provider bank 120 are logically divided into 2 environments, a client bank environment 122 and a provider bank environment 124. As previously described, the client bank environment 122 which holds the accounts 205 of the client banks 100 customers, is an entirely logically separate environment which allows the customer's accounts 205 to be considered to be held on the books of the client bank 100. Each of the environments 122 and 124 have been illustrated as containing two main components. The provider bank embodiment contains an internal processing section 210 which is coupled to the accounts 215 of the provider bank. Similarly, the client bank environment 122 is illustrated as having a complimentary client bank internal processing section 200 coupled to the accounts 205 of the customers of the client bank 100. Although simplified in the present Figure in a single section 210 or 200, the internal processing sections are appreciated as containing all of the processors, software and interfaces for maintaining the accounts 205, 215 interfacing with external sources (e.g., client bank 100 and clearing and exchange systems 220, 230) and generating reports and statements (240, 245, 250 and 260).

As previously described, the client bank 100 communicates with provider bank 120 using link 110. As further described below, there are a variety of structures and data formats which can be used to provide this communication link 110. The link 110 is illustrated as being bi-directional as the client bank 100 communicates payment messages as well as Advice To Receive (ATRs) to the internal processing section 200 while the internal processing section 200 communicates back to the client bank 100 various statuses and reports, as well as funds transfers to and from the client bank 100 and the customers account 205.

The internal processing section 200 for the client bank is shown as generating various statements and reports. Specifically, the processing section 200 generates statement data 240 for the customers of the client bank. This statement data can be formatted and sent directly by the internal processing section 200 to the customers of the client bank 100. Alternatively, the statement data can be transmitted back to the client bank 100 for its own generation of the statements for its clients or alternatively sent to a third party for generation of the statements on behalf of the client bank 100.

The internal processing section 200 also generates financial reports 245 such as a General Ledger (GL) movement report as well as a Management Information System (MIS) report. The financial reports 245 are generally accounting reports that are transmitted to the client bank 100 in order that the client bank 100 may update their systems and books. The financial reports 245 can be sent either electronically, by hardcopy or by both methods.

One additional report illustrated in Figure 2 as being generated by the internal processing section 200 is a billing data report 250. The billing data report 250 informs the client bank 100 of the banking actions undertaken by the provider bank 120 on behalf of the customers of the client bank 100 and the corresponding charges for the banking actions. Presumably, these charges from the provider bank 120 to the client bank 100 are passed onto the customers of the client bank 100 that caused the charges to be incurred.

Although only a single client bank environment 122 is illustrated in Figure 2, it is readily appreciated that a similar bank environment is established for each client bank 100 making use of the present invention. In a preferred embodiment of the present invention, each of these client bank environments 122 would interface with the single provider bank environment 124 illustrated in Figure 2.

As further described below, each client bank 100 additionally has its own account 215 in the provider bank environment 124.

As briefly described previously, the provider bank environment 124 includes an internal processing section 210 that is coupled to the accounts 215 of the provider bank. Each of the client banks 100 using the service of the present invention has at least one account 215 with the provider bank. In a preferred embodiment, the client bank 100 has several accounts 215, each in a different currency for conducting transactions in the different currencies. In further preferred embodiment, each customer of the client bank actually has two accounts 205 in the client bank environment 122 in order to provide for double entry accounting practices.

As illustrated in Figure 2, the two processing sections 200 and 210 communicate both payments and credits. This communication is accomplished via internal messaging systems within provider bank 120. Payments typically originate from the customer accounts 205 and credits typically are received by processing section 210 from external sources such as clearing systems 220 and 230 for the crediting of customer accounts 205.

The following is an example of the operation of the system in executing a foreign payment. The customer of the client bank 100 (not shown) contacts client bank 100 and instructs them to make a payment. For example, the customer might instruct client bank 100 to perform a wire transfer to the German bank of one of its suppliers. Client bank 100 formats the transaction message and communicates it to the provider bank 120 over link 110. As further described below, there is typically a front end processing section (not shown in Figure 2) within provider bank 120 which receives the transaction from client bank 100 and forwards the transaction message to processing section 200. Upon its receipt, processing section 200 debits the account 205 corresponding to the customer and transmits the funds along with a payment message to processing section 210 within the provider bank environment 124. In a preferred embodiment, the transfer of funds from a customer account 205 to the processing section 210 is immediate via a memo post transaction.

Upon receipt of the funds and the transaction message from processing section 200, the processing section 210 formats the payment instruction in accordance with the particular clearing system 220 that is going to be used to

transfer the payment to the German bank. For example, the German bank might only be a member of the German RTGS system and the processing section 210 would format the payment for transmission to this clearing system. Alternatively, the German bank of the supplier might be a member of the German MLNS clearing system which requires a different formatting of the payment message. Once the payment message has been formatted for the appropriate clearing channel, it is transmitted to this clearing channel for ultimate receipt by the German bank. If the payment is going through a correspondent bank in a foreign country rather than directly through a clearing system 220, the payment instruction is forwarded to the correspondent bank through the Swift or Telex system 230.

Figure 3 illustrates an embodiment of the present invention in which instructions for financial transactions are communicated from client bank 100 to provider bank 120 through a proprietary file structure. Figure 3 further illustrates the processing of payments and credits to and from provider bank 120 through local clearing systems 370 to and from beneficiaries/remitters 380. In the example illustrated in Figure 3, one or more of the customers 300 of client bank 100 wishes to execute an international transaction. Again, the customers can be located in a foreign country and desiring a payment into the U.S. or in the U.S. and desiring a payment into a foreign country. Alternatively, the system depicted in Figure 3 can be used for a foreign country to a foreign country payment. Once one or more payment transactions have been received by client bank 100, they are formatted into a multiple transaction format and transmitted to provider bank 120 in file 310. The format of the payments in file 310 are such that multiple payment types and currencies are capable of being included in a single file 310. This includes Clearing House Interbank Payment System (CHIPS) format, FedWire, book, U.S. domestic ACH payments, and Euro or other foreign currency payments. Wire, international ACH payments, checks and drafts are also capable of being included in the single mixed file 310. As previously described, the formats for the individual payments can be in UN/EDIFACT, ANSI X12 as well as other formats.

In a preferred embodiment of the present invention, file 310 is communicated from client bank 100 to provider bank 120 over the public Internet. The public Internet provides a very cost effective means of



communicating between client bank 100 and provider bank 120. This communication over the public Internet is capable only due to extensive security means. In the preferred embodiment, three different types of public/private key infrastructure (PKI) security models are supported. These security models include Trusted Link Templar™, RSA and Entrust™. All three of these security models incorporate full strength encryption, digital signature authentication, digital certificates, and non-repudiation. In this manner, client bank 100 and provider bank 120 can safely securely and confidently transmit financial transactions over the public Internet. In an alternative embodiment, a Value Added Network (VAN), leased line or direct CPU to CPU communication links are options.

In the preferred embodiment using the Internet, the file 310 is generated by the operating system within the client bank 100. The file 310 is then forwarded to the agreed upon security module such as Trusted Link Templar™. The security module encrypts the file 310 and digitally signs the message. The encrypted signed file 310 is then formatted for particular agreed upon format. For example, the file 310 can be forwarded to an EDI translator where it is translated into a ANSI X12 or EDIFACT message format.

The file 310, encrypted, digitally signed and formatted is enclosed in a secured e-mail Simple Mail Transfer Protocol (SMTP) format and sent through the client bank 100 firewalls to the Internet. The gateway 320 within provider bank 120 receives this secured e-mail message 310 and routes it to the server where Templar™ resides. In the embodiment depicted in Figure 3, it is assumed that the Templar™ server resides within the gateway 320 itself, but as appreciated by those skilled in the art, the Templar™ server can be separate from the gateway 320. Templar decrypts the file 310 and verify the digital signature for authentication. Once the gateway 320 has authenticated the digital signature, a non-repudiation message is sent back to client bank 100 indicating that the provider bank 120 has validated the sender's identity and confirmed that the file was received unchanged. The financial transaction(s) contained in file 310 are then forwarded to the payment processor 330 for processing. EDI translation as well as the application of a second level of authentication against an EDI message would take place at this point as well. The payment processor 330 separates out

each of the transactions for routing the payment. The routing decision primarily depends on the destination of the payment as well as its value.

As illustrated in Figure 3, low value payments, typically below fifty thousand United States dollars (USD) are transmitted by one method whereas high value payments are transmitted via wire. Low value payments passed through a hub 340 within provider bank and are forwarded to either the main provider branch 360 or a local provider branch 350 that is more convenient with respect to the ultimate destination of the payment. For example, if the beneficiary 380 is in France, the low value payment will be forwarded to a local provider branch 350 located in France. If there is no local branch 350 of the provider bank 120, the low value payment is transmitted by the hub 340 to the main provider branch 360. Branch 360 is then able to transmit the low power payment value through a local clearing system 370, perhaps through a correspondent bank with which the provider branch 360 has a previous relationship.

The local clearing system 374 low value payments can be the international ACH system, local GIRO systems or other local banking mechanisms with which the provider bank 120 has previously established relationships. The local clearing system 370 is then able to provide the beneficiary with the funds.

If a foreign currency exchange (FX) is required with respect to the payment, such FX preferably occurs in the main provider branch 360. The client bank environments 122 and the provider bank environment 124 previously described with respect to Figure 2 are preferably embodied in the payment processor 330. In a preferred embodiment, the payment processor 330 is located at the main provider branch 360, but its functions can be embodied at local provider branches that maintain the relationships with the client bank 100.

High value payments, greater than fifty thousand USD, are transmitted by the payment processor 330 to the main provider branch 360. As previously described, the main provider branch 360 uses local clearing systems 370 such as RGTS, MLNS, European Banking Association (EBA) Euro clearing, correspondent banks, and the Trans-European Automated Real-time Gross settlement Express Transfer (TARGET) system.

Although the above has described the process followed for payments from client bank customers 300 to beneficiaries 380, a reverse of the process is used

for credits to the customers 300 (i.e., payments from remitters 380). How credits are specifically handled are subject to predetermined contractual arrangements with the particular client bank 100. For example, a credit might be deposited in the customer's account 205 (see Figure 2) or might be forwarded directly to the client bank 100 for deposit in the customer's account (not shown ) at the client bank 100.

Figure 4 illustrated an alternative embodiment in which payments and credits are transmitted. In the embodiment illustrated in this figure, financial messages are communicated between client bank 100 and provider bank 120 using the SWIFT network. SWIFT is a bank owned cooperative supplying secure messaging services and interface software employed by over six thousand seven hundred financial institutions in close to two hundred countries. As most significant client banks 100 subscribe to the SWIFT network, this interface for communicating financial messages significantly expands the service of the present invention.

Figure 5 illustrates an embodiment of the present invention for the issuance of checks. The check request 500 are transmitted by the client bank (not shown) to the client bank internal processing section 200 within the provider bank 120. The structure of the provider bank 120 is the same as previously illustrated. The client bank current accounts 205 has been further illustrated as including the accounts for its customer's Corporation A 206, Corporation B 207 and Corporation C 208. A client bank 100 typically has three to four thousand different accounts (e.g., 206-208) contained in the client bank accounts 205.

As the internal processing section 200 receives the check request, the requested amount is debited from the customer's account 206-208, in order to effectuate the issuance of the check. At this point, as shown in Figure 5, there are three different ways in which the actual physical check may be issued. In the first embodiment, the check request is transmitted to the provider bank internal processing section 210 in the provider bank environment 124. The physical check can then be printed and issued from the processing section 210 and directly forwarded to the beneficiary, e.g., beneficiary A 530, beneficiary B 535 or beneficiary C 540. Alternatively, the internal processing section 210 may use one of the other payment mechanism such as shown in Figure 3 to have the check

physically printed and forwarded to the beneficiary, 530-540, by a local correspondent bank.

In the second and third embodiment, the client bank internal processing section 200 issues instructions to either the home office of the corporation 510 or the home office of the client bank 520 in order to have the check printed at either of these locations. In these embodiments, a check design and print module (included in 510 and 520) is provided to the corporation or the client banks' home office that allows the users to create and customize check layouts to suit their particular requirements, for example requirements such as the local currency and country standards. This capability of the present invention eliminates the need for either the corporation or the client bank to inventory check stock. This feature, also known as multi-bank/multi-currency capability, enables check printing to be drawn on any bank anywhere in the world in which an account is maintained and which the currency format is available. If the client bank has several branches, each of the branches can make use of the check printing capabilities of the present invention by accessing the server 520 in the client bank home office. Similarly if a corporation has many divisions, each of the divisions can make use of this capability by accessing the multi-bank/multi-currency capability in the corporations home office 510. In either case, the home office of the client bank or the treasurer of the corporation is able to monitor activity from all locations on line at the home office.

One further feature of the present invention with respect to checks is its clearing capabilities. The present invention provides a reliable, straight forward procedure for clearing multi-currency checks denominated either in National Currency Units (NCU) (e.g., USD) or Euros. The proceeds of a check so cleared can be credited into an account in the currency in which the check was drawn or can be converted by provider bank 120 and credited to any account held with provider bank 120 throughout the world. Items in all currencies (including Euros) receive credit according to a negotiated availability schedule (under usual reserve). In a preferred embodiment "third country" checks, i.e., checks denominated in a currency other than the currency of the country where the drawee bank is resident (e.g., a USD check drawn on a French bank in France), and checks with a face value exceeding \$50,000 equivalent are handled on a collection basis.

A further advantage of the present invention can also be explained with respect to Fig. 5. This advantage is liquidity management. In a preferred embodiment of the present invention, the provider bank 120 pays interest on individual DDA balances maintained in the client bank current accounts 205 (e.g., accounts 206-208). The sweeping of funds for investment purposes is not required, which simplifies reconciliation of the accounts. In a preferred embodiment, interest is accrued daily and credited monthly on the first day of the succeeding months. Interest rates can be set according to balance tiers (e.g. higher balance equals higher rate). In a further embodiment, interest is automatically adjusted for back values up to six months.

A further feature of liquidity management is zero balance and target balance sweeps. In a preferred embodiment, these sweeps are automatic and are used for concentration of funds of related accounts. For example, a sweep can be made from the accounts of various divisions of a corporation into a single corporate account. Furthermore, such sweeps can be performed to transfer funds from a collection account into a disbursement account. Both types of sweeps can be used to concentrate funds in the same currency or between an NCU and Euro. In a preferred embodiment, provider bank 120 automatically adjusts investments and interest for bank valuations. One of the main purposes of such sweeps is that the provider bank, in a preferred embodiment, pays a preferable interest rate if the balance of the account is above a minimum threshold. Sweeping funds from various accounts into a single account enables the customers to more easily achieve this minimum balance requirement.

Liquidity management according to the present invention also involves multiple account pooling. Credit and debit balances in the same currencies are notationally offset to reduce overdraft interest. There is no actual movement or commingling of funds employing this offset. Euro and NCU accounts held in the name of one customer can be part of the same pool. All accounts in the pool operate autonomously, earning and paying credit and debit interest on the basis of the individual daily balances and assigned rates. A separate "pooled interest" calculation is made on the aggregate net balance of the pool. The pooling effect (the pooled interest net of the interest paid to the individual accounts) is normally credited to a "pool leader" account. In this manner, the customer is provided with an incentive to have all of his accounts with provider bank 120 without being

penalized for having a substantial sum of money spread across several accounts in several different currencies. The pooling benefit is calculated monthly and reports are generated that detail interest benefit allocation both at the pool leader and individual account levels.

5        Fig. 6 illustrates a lock box processing embodiment of the present invention. As known to those skilled in the art, lockbox processing is a service in which the bank receives payments on behalf of a customer subscribing to the lockbox service. For example, the bank may process all of the incoming payments for a telephone company when its customers pay their telephone bills.  
10      As illustrated in Fig. 6, each of the remitters 615-625 forward their payments, ultimately, to a central delivery point 610. Remitter C 625 is illustrated as delivering its payment to a remote delivery point 630. The remote delivery point in turn forwards all of the payments it receives to the central delivery point 610.

On a periodic basis, e.g., daily, the central delivery point 610 transmits all  
15      of the receipt payments to the lockbox processing system 600 within the provider bank 120. The provider bank 120 opens the mail and sorts it by account and currency. Within lockbox processing system 600 there exists the hardware (not shown) to perform the following traditional lockbox operations. The checks included with the payments are processed using normal financial processing for  
20      incoming checks. This processing includes capturing the MICR data and creating a database of the information related to each check as well as an image of the check itself. Images are separately created for each of the invoices and other remittances contained in the envelopes from the central delivery point 610. Data is manually entered from the invoices and is associated with the images of the  
25      invoices as well as the images and data for the checks. All of the data for a particular remittance is cross referenced such that a user may look at the data and images for the check as well as the data and images for the invoices.

In the financial processing of the checks, the credits are passed to the internal processing section 210 for the crediting of the account for the client bank  
30      in account section 215. The internal processing section 210 furthermore advises the client bank internal processing section of the credits which then accordingly updates the specific account of the lockbox owner (206-208) in the client bank current accounts section 205.

Once the processing of all of the incoming mail by the lockbox processing system 600 is completed, the lockbox processing system 600 creates the lockbox database 640 which contains the images and data associated with both the checks and the invoices contained within each payment. As illustrated in Fig. 6, the client bank 100 has access to this lockbox database 640 for the purposes of generating statements for its customers and/or for exception, query and reconciliation purposes. In a further embodiment, the customers of the client bank 100 have access to the lockbox database 640, either directly, or through the client bank 100.

Figure 7 illustrates the system method of the present invention for reconciling payments and credits. In banking terms this is known as Nostro reconciliation. Accounts which one bank maintains on behalf of another bank are known as Nostro and Vostro accounts. From the viewpoint of a first bank, a Nostro account is an account that the first bank maintains on behalf of a second bank and a Vostro account is the account which the second bank maintains for the first bank. Reconciliation according to the present invention is a two stage process. The example illustrated in Figure 7 is a reconciliation of a payment through a local clearing system 705 destined for the account 740 of a customer of the client bank. Firstly, there is a reconciliation in the books of the provider bank 124 and secondly in the books of the client bank 122.

In the example of Figure 7, a \$3 million dollar payment in favor of a customer of the client bank is cleared through a local clearing system 705. The funds are received by a correspondent of the provider bank and credited to the Vostro account 710 of the provider bank maintained at the correspondent bank. The funds are then transferred from the Vostro account 710 at the correspondent bank to the provider bank 120. Specifically, the correspondent bank in one embodiment of the present invention generates a SWIFT MT100 or MT202 payment instruction to the provider bank. This payment instruction results in a series of credits and debits in the accounts within the provider bank environment 124 and the client bank environment 122. The first is a debit against the provider bank Nostro account 715.

A first reconciliation is required to match the entries in the general ledger of the provider bank environment 124 and the entries relating to the same transaction processed by the correspondent bank. A general ledger entry for the

5 \$3 million is fed from the provider bank Nostro account 715 to the Nostro reconciliation system 725 in the provider bank environment 124. This entry is then reconciled with a corresponding entry from the correspondent bank. In addition to the MT100 payment instruction with respect to the \$3 million credit described above, the correspondent bank transmits an MT950 statement of account to the Nostro reconciliation system 725 in the provider bank environment 124. The first reconciliation process requires the matching of an entry on the MT950 statement with respect to the \$3 million transaction to the related entry on the provider bank ledger. The process is carried out in the Nostro reconciliation system 725 in the provider bank environment 124. Any unmatched item is referred to an investigation system 730.

15 The second financial transaction to occur is the crediting of the \$3 million from the provider bank environment 124 to the customer account 740 in the client bank environment 122. In this transaction, the provider bank environment 124 is essentially acting as a correspondent for the client bank environment 122. As shown in Figure 7, the client bank Vostro account 720 issues a SWIFT MT910 payment instruction that is transferred by the internal messaging system described above to the client bank Nostro account 735. This results in the crediting of the \$3 million to the customer's account 740. A separate reconciliation is required to match entries in the client bank Nostro account 735 relating to the same transaction to the entries processed by provider bank environment 124 as correspondent for the client bank environment 122.

25 The client bank environment 122 matches transactions in the same way as described above with respect to transfers to the provider bank environment 124 from the correspondent bank. Specifically, the ledger entries are fed from the client bank Nostro account 735 to the Nostro reconciliation system 745. Similar to the statement described above, provider bank environment 124, acting as a correspondent bank, transmits an MT950 statement of account to the Nostro reconciliation system 745 in the client bank environment 124. This MT950 statement reflects the \$3 million transaction between the provider bank environment 124 and the client bank environment 122. The Nostro reconciliation system 745 then attempts to matches the MT950 statement entries to the ledger entries. As with the first reconciliation, any unmatched items are referred to the investigation system 750.



Although the above description has been with respect to a incoming credit from a local clearing system, it is clear that the same reconciliation process is performed for outgoing payments from a customer account (e.g., account 740). Any transaction carried out by the provider bank environment 124 as  
5 correspondent for the client bank environment 122 results in a debit or credit to the relevant client bank Vostro currency account (e.g., account 720) in the provider bank environment 124. The provider bank environment 124 generates debit entries when they receive an MT100 from the client bank environment 122. For incoming receipts the credit entry will be generated by an MT100 or MT202  
10 received from the external correspondent bank. As described above, when the provider bank environment 124 processes an incoming receipt it will also generate an MT910 and send this via the internal messaging system to the client bank environment 122. This standard process for all currencies leads to a very high automatic match rate in the Nostro reconciliation systems 725, 745. In a  
15 preferred embodiment, the Nostro reconciliation systems 725, 745 operate on a reconciliation processor.

Fig. 8 illustrates an alternative embodiment of the present invention for use with a business-to-business (B2B) exchange service. The environment within provider bank 120 is essentially the same as depicted with respect to Figs. 2, 5  
20 and 6, the difference being that the environment 123 is an environment for the exchange as opposed to an environment for the client bank. The exchange current accounts 206 includes an account (211-213) for each of the members 810 of the exchange. In a preferred embodiment, a membership in the exchange requires a settlement account (211-213) to be held with the exchange.

25 In operation, the members 810 go to the exchange website 800 in order to initiate and to conclude a transaction. A buying member is able to view an invoice for the transaction on the exchange website 800. Through a link on the website 800 the member 810 is able to contact his own bank 820 in order to instruct his bank to pay proceeds to the provider bank 120 for the account of the  
30 exchange for credit to the seller's account (211-213) with the exchange.

The provider bank 120 upon receipt of the payment instruction sends an advice of credit to the seller via a secure postmarked e-mail. The seller can then log onto the exchange website 800 and using a link on the website 800 can access the provider bank 120 and instruct the exchange internal processing section 201

to pay the proceeds via its account at Chase (211-213) to the seller's bank 820 for the seller's account or to any bank designated for any account designated.

As discussed above, this embodiment of the present invention allows any B2B website to safely and securely provide settlement services to its members  
5 without the significant and extensive costs of building an infrastructure for performing such settlement services. Furthermore, as discussed above, the present invention is able to provide foreign services as well as international banking services as required by the members of the exchange (e.g., payments and/or credits to and/or from foreign countries).

10 Although the present invention has been described in relation to particular embodiments thereof, many other variations and modifications and other uses will become apparent to those skilled in the art. It is preferred, therefore, that the present invention be limited not by the specific disclosure herein, but only by the appended claims.